WHAT IS CLAIMED IS:

1. A method for optimizing digital subscriber line (DSL) communications performance over a cable bundle having a plurality of loops and including at least one active DSL loop, comprising the steps of:

determining, for a new DSL loop communication, a required bit rate of that new DSL loop communication, the determined required bit rate corresponding to a required bandwidth that is smaller than a total available bandwidth on one of the plurality of loops;

calculating, for a plurality of location positions of the required bandwidth for the new DSL loop communication within the total available bandwidth, a crosstalk noise effect with respect to the at least one active DSL loop; and

choosing a location position for the required bandwidth to carry the new DSL loop communication within the total available bandwidth where the calculated crosstalk noise effect with respect to the at least one active DSL loop is minimized.

2. The method as in claim 1 wherein the at least one active DSL loop is at least two active DSL loops, and the step of choosing comprises the step of choosing a location position for the required bandwidth for the new DSL loop communication within the total available bandwidth where the calculated crosstalk noise effect with respect to the at least two active DSL loops is minimized.

3. The method as in claim 1 wherein the required bandwidth corresponds to a certain number of subcarriers.

4. The method as in claim 3 wherein the certain number of subcarriers needed for the required bandwidth varies with the plurality of location positions for the required bandwidth within the total available bandwidth.

5. The method as in claim 4 wherein the varying certain number of subcarriers, specified by a chosen location position for the required bandwidth having minimized crosstalk noise effect, effectuates a reduction in DSL modem power consumption.

6. The method as in claim 1 wherein the step of calculating further includes the step of sliding the required bandwidth across the total available bandwidth at the plurality of location positions for which crosstalk noise effect is calculated.

7. The method as in claim 1 wherein the required bandwidth is a required upstream bandwidth and the total available bandwidth is a total available upstream bandwidth.

8. The method as in claim 1 wherein the required bandwidth is a required downstream bandwidth and the total available bandwidth is a total available downstream bandwidth.

9. The method as in claim 1 wherein the step of determining further comprises the step of removing unnecessary idle ATM cells, and the required bit rate for the new DSL loop communication is a bit rate needed for data communication over the new DSL loop without inclusion of unnecessary idle ATM cells.

10. The method as in claim 1 wherein the crosstalk noise effect is near-end crosstalk (NEXT) noise effect.

11. The method as in claim 1 wherein the calculated crosstalk noise effect is an estimation calculated effect.

12. The method as in claim 1 wherein the calculated crosstalk noise effect is an analytically calculated effect.

13. Apparatus for optimizing digital subscriber line (DSL) communications performance over a cable bundle having a plurality of loops and including at least one active DSL loop, comprising:

means for determining, for a new DSL loop communication, a required bit rate of that new DSL loop communication, the determined required bit rate corresponding to a required bandwidth that is smaller than a total available bandwidth on one of the plurality of loops;

means for calculating, for a plurality of location positions of the required bandwidth for the new DSL loop communication within the total available bandwidth, a crosstalk noise effect with respect to the at least one active DSL loop; and

means for choosing a location position for the required bandwidth to carry the new DSL loop communication within the total available bandwidth where the calculated crosstalk noise effect with respect to the at least one active DSL loop is minimized.

14. The apparatus as in claim 13 wherein the at least one active DSL loop is at least two active DSL loops, and the means for choosing operates to choose a location position for the required bandwidth for the new DSL loop communication within the total available bandwidth where the calculated crosstalk noise effect with respect to the at least two active DSL loops is minimized.

15. The apparatus as in claim 13 wherein the required bandwidth corresponds to a certain number of subcarriers.

16. The apparatus as in claim 15 wherein the certain number of subcarriers needed for the required bandwidth varies with the plurality of location positions for the required bandwidth within the total available bandwidth.

17. The apparatus as in claim 16 wherein the varying certain number of subcarriers, specified by a chosen location position for the required bandwidth having minimized crosstalk noise effect, effectuates a reduction in DSL modem power consumption.

18. The apparatus as in claim 13 wherein the means for calculating further includes means for sliding the required bandwidth across the total available bandwidth at the plurality of location positions for which crosstalk noise effect is calculated.

19. The apparatus as in claim 13 wherein the required bandwidth is a required upstream bandwidth and the total available bandwidth is a total available upstream bandwidth.

20. The apparatus as in claim 13 wherein the required bandwidth is a required downstream bandwidth and the total available bandwidth is a total available downstream bandwidth.

21. The apparatus as in claim 13 wherein the means for determining further comprises means for removing unnecessary idle ATM cells, and the required bit rate for the new DSL loop communication is a bit rate needed for data communication over the new DSL loop without inclusion of the unnecessary idle ATM cells.

22. The apparatus as in claim 13 wherein the crosstalk noise effect is near-end crosstalk (NEXT) noise effect.

23. The apparatus as in claim 13 wherein the calculated crosstalk noise effect is an estimation calculated effect.

24. The apparatus as in claim 13 wherein the calculated crosstalk noise effect is an analytically calculated effect.

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25. A digital subscriber line (DSL) transmitter connected to a certain loop in a cable bundle having a plurality of other loops and including active DSL loop communications on the other loops, comprising:

an ATM idle cell removal machine that is operable to determine for a new DSL loop communication on the certain loop a required bit rate that corresponds to a required bandwidth smaller than a total available bandwidth on that certain loop;

a noise estimation algorithm that is operable to calculate, at each one of a plurality of possible required bandwidth positions within the total available bandwidth, a crosstalk noise effect of the new DSL loop communication with respect to the active DSL loop communications on the other loops; and

a noise minimization algorithm that is operable to choose one of the possible positions as a location of the required bandwidth within the total available bandwidth, wherein the calculated crosstalk noise effect with respect to the active DSL loop communications on the other loops at the chosen one of the possible positions is minimized.

26. The transmitter as in claim 25 wherein the required bandwidth corresponds to a certain number of DMT subcarriers that varies with the plurality of possible positions for the required bandwidth within the total available bandwidth.

27. The transmitter as in claim 26 wherein the varying certain number of subcarriers, specified by a chosen possible position for the required bandwidth having minimized crosstalk noise effect, effectuates a reduction in transmitter power consumption.

28. The transmitter as in claim 25 wherein the noise minimization algorithm further operates to slide the required bandwidth across the total available bandwidth at the plurality of possible positions for which crosstalk noise effect is calculated.

29. The transmitter as in claim 25 wherein the required bandwidth is a required upstream bandwidth and the total available bandwidth is a total available upstream bandwidth.

30. The transmitter as in claim 25 wherein the required bandwidth is a required downstream bandwidth and the total available bandwidth is a total available downstream bandwidth.

31. The transmitter as in claim 25 wherein the idle cell removal machine further operates to remove unnecessary idle ATM cells, and the required bit rate for the new DSL loop communication is a bit rate needed for data communication over the certain loop without inclusion of unnecessary idle ATM cells.

32. The apparatus as in claim 25 wherein the crosstalk noise effect is near-end crosstalk (NEXT) noise effect.

33. The apparatus as in claim 25 wherein the calculated crosstalk noise effect is an estimation calculated effect.

34. The apparatus as in claim 25 wherein the calculated crosstalk noise effect is an analytically calculated effect.

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